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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/529,242

03/25/2005

Stephen Christopher Neil Brown

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ALEXANDRIA, VA 22314

EXAMINER

EMPIE, NATHAN H

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

10/17/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/529,242

Applicant(s)

BROWN ET AL.

Examiner

Nathan H. Empie

Art Unit

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 29,31-33 and 35-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 29,31-33 and 35-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Art Unit: 1792

DETAILED ACTION

Examiner acknowledges receipt of 09/14/20075 amendment to the specification and claims, which were entered into the file. Claims 30, 34, and 36-45 were cancelled, claims 29, 31, 32, 33, and 35 were amended, and claims 46-50 were added.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 32, 33, 48 and 49 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a shadow mask and a reflective mask individually, as taught by separate embodiments ([0011], [0012], [0024-26]), it does not reasonably provide enablement for a mask being both a shadow mask and a reflective mask. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 29, 31-33, 35 and 46-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al. (EP 653762 A1, hereafter '762) in view of Khoobehi et al. (US patent 5,376,086, hereafter '086).

Art Unit: 1792

'762 teaches a method of removing a portion of a non-metallic surface, such as concrete (12) (Abstract, Col 5 line 57 –Col 6 line8 Fig 1),

the method comprising providing a beam of laser light (14) (Fig 1);

irradiating a location of the surface (12) with the laser light (14) (Fig 1);

'762 does not teach a shadow mask is used to remove a low power density part of the laser beam that is below a threshold power density for surface removal before the surface location is irradiated. '086 teaches a shadow mask (14-16, col 1 lines 14 – 23, col 5 lines 29-35) is used to remove a low power density part of the laser beam that is below a threshold power density for surface removal before the surface location is irradiated (Fig 1, col 2 lines 25-35, Fig 13, col 7 lines 1-29). '086 teaches a laser ablation method where the incorporation of a mask possessing a plurality of etched patterns enhances the beam quality by providing a more controllable and predictable average laser power distribution (col 2 lines 35 – 68). The examiner realizes that the laser machining method taught by '086 is not applied to removing concrete surface, but the mask feature and method of using the shadow mask taught by '086 to achieve more controllable and predictable laser power distribution would transcend over controlling the output of any type of laser beam, regardless of what materials they are machining. Since '762 teaches a method of using a laser to machining a surface, it would have been obvious to one of ordinary skill in the art at the time of invention to have incorporated the shadow mask of '086 into the method described by '762, to enhance the controllability and predictability of the resulting laser beam power distribution.

Claim 31: '762 in view of '086 teaches the method of removing a portion of a concrete surface according to claim 29 (above) wherein '086 further teaches the shadow mask absorbs substantially all of that portion of the laser beam that is below the threshold power density (col 2 lines 35-50).

Claim 32: '762 in view of '086 teaches the method of removing a portion of a concrete surface according to claim 29 (above) wherein '086 further teaches the shadow mask is a reflective mask wherein light incident on the mask is reflected by the mask (col 3, lines 18-57).

Art Unit: 1792

Claim 33: '762 in view of '086 teaches the method of removing a portion of a concrete surface according to claim 32 (above) wherein '086 further teaches the reflection redirects low power density laser light to another low power density portion of the laser beam to create an additional high power density portion of the laser beam (col 2 lines 44-50).

Claim 35: '762 in further view of '086 teach the method of removing a portion of a surface according to claim 29 (above) wherein '762 further teaches the surface portion is removed by the effects of thermal shock (col 2 line 57 – col 3 line16).

Claims 46 – 50: The only difference between claims (29, 31-33, and 35) and (46-50) respectfully is the substitution of “a concrete surface” for “a natural stone surface”. '762 in view of '086 teach the rejection to claims 29, 31-33, and 35 (above), and '762 further teaches that its present invention may be applied not only to concrete, but also to other materials such as stone and sandstone (col 5 lines 31 – 38).

Response to Arguments

Applicant's arguments with respect to amendments made to the specification and claims, see page 12 second paragraph, filed 9/14/2007, with respect to formal ground objections to the specification and claims have been fully considered and are persuasive. The objections of the specification and claim 31 has been withdrawn.

Applicant's arguments with respect to amendments made, see page 13 first paragraph, filed 9/14/2007, with respect to the 35 U.S.C 102(b) rejections of both Khoobehi and Neiheisel have been fully considered and are persuasive. The U.S.C. 102(b) rejection of claims 29-33 as anticipated by Khoobehi have been withdrawn. The U.S.C. 102(b) rejection of claims 29, 32, and 33 as anticipated by Neiheisel have been withdrawn.

Applicant's arguments, with respect to amendments made to claim 29 and 32 see page 9, filed 9/14/2007, with respect to amending the mask means to be a shadow mask have been fully considered and

Art Unit: 1792

are persuasive, as the examiner notes that a shadow mask structurally would require a plurality of apertures, instead of one. The U.S.C. 103(a) rejection of claims 29, 34, 35, 36, and 45 as being unpatentable over Li in view of Ngoi has been withdrawn. Applicant's arguments with respect to claims 29, 31, 32-34, 35, and 46-50 have been considered but are moot in view of the new ground(s) of rejection. Amendments to the claims by incorporation of a shadow mask have necessitated the new grounds of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan H. Empie whose telephone number is (571) 270-1886. The examiner can normally be reached on M-F, 7:00- 4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on (571) 272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1792

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NHE



MICHAEL B. CLEVELAND
SUPERVISORY PATENT EXAMINER